Power Reactor Event # 41142

Site: FITZPATRICK		**Notification Date / Time:**	10/22/2004 11:00 (EDT)
Unit: 1 **Region:** 1 **State :** NY		**Event Date / Time:**	10/08/2004 18:31 (EDT)
Reactor Type: [1] GE-4		**Last Modification:**	10/22/2004
Containment Type: MARK I			
NRC Notified by: TIMOTHY PAGE	**Notifications:**	RONALD BELLAMY	R1
HQ Ops Officer: ARLON COSTA		ANNE BOLAND	R2
Emergency Class: NON EMERGENCY		JULIO LARA	R3
10 CFR Section:		BOB DENNIG	NRR
21.21 UNSPECIFIED PARAGRAPH		VERN HODGE	NRR
		RODGER LANKSBURY	R3
		JACK WHITTEN	R4

Unit	Scram Code	RX Crit	Init Power	Initial RX Mode	Curr Power	Current RX Mode
1	N	No	0	Refueling	0	Refueling

PART 21 REPORT: AUXILIARY RELAYS FAILURE

"In accordance with 10CFR21.21(d)(3), initial notification of a reportable defect is being made by James A. Fitzpatrick (JAF).

"The failure of two General Electric (GE) IRMA auxiliary relays in a short period of time were identified in the corrective action system as a potential common mode failure. Initial troubleshooting revealed that both relay coils indicated open. There was no evidence of any obvious cause for the coils to open circuit (e.g. discoloration, smell, physical damage). Both relays are normally de-energized relays located in a mild environment in the relay room (controlled humidity, no vibration at the panels, no local heat source that could cause accelerated aging). Both relays were installed in 1988 along with 21 other relays. A total of 33 relays were purchased from GE with the same lot/date code.

"An extent of condition review was conducted. By checking the continuity of related relay coils, two other coil failures were detected. A failure analysis of the relays was performed. The failure mode was determined to be an open in the coil due to corrosion of the coil wire. This open in the coil will prevent the relay from changing state as the relay is energized. An independent laboratory concluded that the coil insulation was damaged and that the under lying wire was damaged during coil manufacture. The damage allowed the copper wire to corrode over the years to the point of failure.

"These HMA relays were installed in multiple Emergency Core Cooling Systems (ECCS) and other systems. Each component was evaluated to determine the specific impact on the respective system. The systems affected included: Residual Heat Removal (RHR, the Low Pressure Coolant Injection (LPCI) mode of operation), Emergency Diesel Generators (EDGs), Automatic Depressurization System (ADS), Reactor Core Isolation Cooling (RCIC), Core Spray (CS), and High Pressure Coolant Injection (LPCI).

"JAFs evaluation concluded that a substantial safety hazard existed in that there was a potential for a major deficiency/major degradation of essential safety-related equipment, specifically for the RHR (LPCI mode of

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operation) and HPCI systems.

"No other safety functions would have been lost for the other identified systems.

"Component and Supplier:
GE HMA Type auxiliary relays
GE Part No. 12HMA124A2
GE Dwg No. DA137C6164P001
Date Code 14VC; 8836
Serial #s: D88542-0001D R02 through D88542-0033D R02

"All were purchased as safety-related from GE under JAF PO # 88-5628

"All installed safety-related relays from this lot were replaced during the recent refueling outage."

The licensee notified the NRC Resident Inspector.

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NRC FORM 361 (12-2000)

U.S. NUCLEAR REGULATORY COMMISSION
OPERATIONS CENTER

REACTOR PLANT EVENT NOTIFICATION WORKSHEET

EN # 41142

NRC OPERATION TELEPHONE NUMBER: PRIMARY – 301-816-5100 or 800-532-3469*, BACKUPS – [1st] 301-951-0550 or 800-449-3694*, [2nd] 301-415-0550 and [3rd] 301-415-0553
*Licensees who maintain their own ETS are provided these telephone numbers.

NOTIFICATION TIME	FACILITY OR ORGANIZATION	UNIT	NAME OF CALLER	CALLBACK #
1100	JAMES A. FITZPATRICK	1	TIMOTHY PAGE	(315) 349-6209

EVENT TIME & ZONE	EVENT DATE	POWER/MODE BEFORE	POWER/MODE AFTER
1831 EDT EST	10/08/2004	0 % / MODE 5	0 % / MODE 5

EVENT CLASSIFICATIONS		1-Hr. Non-Emergency 10 CFR 50.72(b)(1)			60-Day Optional 10 CFR 50.73(a)(1)		
GENERAL EMERGENCY	GEN/AAEC		TS Deviation	ADEV	(v)(A)	Safe S/D Capability	AINA
SITE AREA EMERGENCY	SIT/AAEC	4-Hr. Non-Emergency 10 CFR 50.72(b)(2)			(v)(B)	RHR Capability	AINB
ALERT	ALE/AAEC	(i)	TS Required S/D	ASHU	(v)(C)	Control of Rad Release	AINC
UNUSUAL EVENT	UNU/AAEC	(iv)(A)	ECCS Discharge to RCS	ACCS	(v)(D)	Accident Mitigation	AIND
50.72 NON-EMERGENCY	(see next columns)	(iv)(B)	RPS Actuation (scram)	ARPS	(vii)	Offsite Medical	AMED
PHYSICAL SECURITY (73.71)	EEEE	(xi)	Offsite Notification	APRE	(viii)	Loss Comm/Asmt/Resp	ACOM
MATERIAL/EXPOSURE	8777	8-Hr. Non-Emergency 10 CFR 50.72(b)(3)				Invalid Specified System Actuation	AINV
FITNESS FOR DUTY	HRT	(ii)(A)	Degraded Condition	ADEG	Other Unspecified Requirement (Identify)		
OTHER UNSPECIFIED REQMT.	(see last column)	(ii)(B)	Unanalyzed Condition	AUNA	✓	10CFR21.21(d)(3)	NONR
INFORMATION ONLY	NNF	(iv)(A)	Specified System Actuation	AESF			NONR

DESCRIPTION

Include: Systems affected, actuations and their initiating signals, causes, effect of event on plant, actions taken or planned, etc. (Continue on back)

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(continued)

NOTIFICATIONS	YES	NO	WILL BE
NRC RESIDENT	✓		
STATE(s)		✓	
LOCAL		✓	
OTHER GOV AGENCIES		✓	
MEDIA/PRESS RELEASE		✓	

ANYTHING UNUSUAL OR NOT UNDERSTOOD? ☐ YES (Explain above) ☑ NO

DID ALL SYSTEMS FUNCTION AS REQUIRED? ☑ YES ☐ NO (Explain above)

MODE OF OPERATION UNTIL CORRECTED: MODE 5 | ESTIMATED RESTART DATE: N/A | ADDITIONAL INFO ON BACK ☑ YES ☐ NO

ADDITIONAL INFORMATION

RADIOLOGICAL RELEASES: CHECK OR FILL IN APPLICABLE ITEMS *(specific details/explanations should be covered in event description)*

LIQUID RELEASE	GASEOUS RELEASE	UNPLANNED RELEASE	PLANNED RELEASE	ONGOING	TERMINATED
MONITORED	UNMONITORED	OFFSITE RELEASE	T. S. EXCEEDED	RM ALARMS	AREAS EVACUATED
PERSONNEL EXPOSED OR CONTAMINATED		OFFSITE PROTECTIVE ACTIONS RECOMMENDED		*State release path in description	

	Release Rate (Ci/sec)	% T. S. LIMIT	HOO GUIDE	Total Activity (Ci)	% T. S. LIMIT	HOO GUIDE
Noble Gas			0.1 Ci/sec			1000 Ci
Iodine			10 uCi/sec			0.01 Ci
Particulate			1 uCi/sec			1 mCi
Liquid *(excluding tritium and dissolved noble gases)*			10 uCi/min			0.1 Ci
Liquid (tritium)			0.2 Ci/min			5 Ci
Total Activity						

	PLANT STACK	CONDENSER/AIR EJECTOR	MAIN STEAM LINE	SG BLOWDOWN	OTHER
RAD MONITOR READINGS		N/A			
ALARM SETPOINTS					
% T. S. LIMIT *(if applicable)*					

RCS OR SG TUBE LEAKS: CHECK OR FILL IN APPLICABLE ITEMS: *(specific details/explanations should be covered in event description)*

LOCATION OF THE LEAK *(e.g., SG B, valve, pipe, etc.)*

LEAK RATE	UNITS: gpm/gpd	T. S. LIMITS	SUDDEN OR LONG-TERM DEVELOPMENT
LEAK START DATE	TIME	COOLANT ACTIVITY AND UNITS: PRIMARY	SECONDARY

LIST OF SAFETY RELATED EQUIPMENT NOT OPERATIONAL

EVENT DESCRIPTION *(Continued from front)*

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General Electric Nuclear Energy
M/C 397
175 Curtner Ave.
San Jose, CA 95125

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